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| APPLICATION NO.   | FILING DATE | FIRST NAMED INVENTOR | ATTORNEY DOCKET NO.             | CONFIRMATION NO. |
|---|-------------|----------------------|---------------------------------|------------------|
| 10/675,575  | 09/30/2003  | Leonard J. Olmer     | Bever<br>2-3-16-20/075903-8     | 9967             |
| 47396 7590 04/10/2007<br>HITT GAINES, PC<br>AGERE SYSTEMS INC.<br>PO BOX 832570<br>RICHARDSON, TX 75083 |             |                      | EXAMINER<br>HECKERT, JASON MARK |                  |
|   |             |                      | ART UNIT<br>1746                | PAPER NUMBER     |
| SHORTENED STATUTORY PERIOD OF RESPONSE  |             | NOTIFICATION DATE    | DELIVERY MODE                   |                  |
| 3 MONTHS  |             | 04/10/2007           | ELECTRONIC                      |                  |

**Please find below and/or attached an Office communication concerning this application or proceeding.**

If NO period for reply is specified above, the maximum statutory period will apply and will expire 6 MONTHS from the mailing date of this communication.

Notice of this Office communication was sent electronically on the above-indicated "Notification Date" and has a shortened statutory period for reply of 3 MONTHS from 04/10/2007.

Notice of the Office communication was sent electronically on above-indicated "Notification Date" to the following e-mail address(es):

docket@hittgaines.com

8

|                              |                                      |                                     |  |
|------------------------------|--------------------------------------|-------------------------------------|--|
| <b>Office Action Summary</b> | <b>Application No.</b><br>10/675,575 | <b>Applicant(s)</b><br>OLMER ET AL. |  |
|                              | <b>Examiner</b><br>Jason Heckert     | <b>Art Unit</b><br>1746             |  |

**-- The MAILING DATE of this communication appears on the cover sheet with the correspondence address --**

**Period for Reply**

A SHORTENED STATUTORY PERIOD FOR REPLY IS SET TO EXPIRE 3 MONTH(S) OR THIRTY (30) DAYS, WHICHEVER IS LONGER, FROM THE MAILING DATE OF THIS COMMUNICATION.

- Extensions of time may be available under the provisions of 37 CFR 1.136(a). In no event, however, may a reply be timely filed after SIX (6) MONTHS from the mailing date of this communication.
- If NO period for reply is specified above, the maximum statutory period will apply and will expire SIX (6) MONTHS from the mailing date of this communication.
- Failure to reply within the set or extended period for reply will, by statute, cause the application to become ABANDONED (35 U.S.C. § 133). Any reply received by the Office later than three months after the mailing date of this communication, even if timely filed, may reduce any earned patent term adjustment. See 37 CFR 1.704(b).

**Status**

- 1) ☒ Responsive to communication(s) filed on 04 January 2007.
- 2a) ☐ This action is **FINAL**.                      2b) ☒ This action is non-final.
- 3) ☐ Since this application is in condition for allowance except for formal matters, prosecution as to the merits is closed in accordance with the practice under *Ex parte Quayle*, 1935 C.D. 11, 453 O.G. 213.

**Disposition of Claims**

- 4) ☒ Claim(s) 1-5, 7, 9-12, 14-20, 22, 24-26, 28 and 30-34 is/are pending in the application.
- 4a) Of the above claim(s) \_\_\_\_\_ is/are withdrawn from consideration.
- 5) ☐ Claim(s) \_\_\_\_\_ is/are allowed.
- 6) ☒ Claim(s) 1-5, 7, 9-12, 14-20, 22, 24-26, 28, and 30-34 is/are rejected.
- 7) ☐ Claim(s) \_\_\_\_\_ is/are objected to.
- 8) ☐ Claim(s) \_\_\_\_\_ are subject to restriction and/or election requirement.

**Application Papers**

- 9) ☐ The specification is objected to by the Examiner.
- 10) ☐ The drawing(s) filed on \_\_\_\_\_ is/are: a) ☐ accepted or b) ☐ objected to by the Examiner.  
Applicant may not request that any objection to the drawing(s) be held in abeyance. See 37 CFR 1.85(a).  
Replacement drawing sheet(s) including the correction is required if the drawing(s) is objected to. See 37 CFR 1.121(d).
- 11) ☐ The oath or declaration is objected to by the Examiner. Note the attached Office Action or form PTO-152.

**Priority under 35 U.S.C. § 119**

- 12) ☐ Acknowledgment is made of a claim for foreign priority under 35 U.S.C. § 119(a)-(d) or (f).
- a) ☐ All    b) ☐ Some \* c) ☐ None of:
1. ☐ Certified copies of the priority documents have been received.
2. ☐ Certified copies of the priority documents have been received in Application No. \_\_\_\_\_.
3. ☐ Copies of the certified copies of the priority documents have been received in this National Stage application from the International Bureau (PCT Rule 17.2(a)).
- \* See the attached detailed Office action for a list of the certified copies not received.

**Attachment(s)**

- |  |   |
|--|---|
| 1) <input checked="" type="checkbox"/> Notice of References Cited (PTO-892)                                | 4) <input type="checkbox"/> Interview Summary (PTO-413)<br>Paper No(s)/Mail Date. _____ |
| 2) <input type="checkbox"/> Notice of Draftsperson's Patent Drawing Review (PTO-948)                       | 5) <input type="checkbox"/> Notice of Informal Patent Application                       |
| 3) <input type="checkbox"/> Information Disclosure Statement(s) (PTO/SB/08)<br>Paper No(s)/Mail Date _____ | 6) <input type="checkbox"/> Other: _____  |

## **DETAILED ACTION**

### ***Response to Arguments***

1. Applicant's arguments, see pages 7-12, filed 1/4/07, with respect to the rejection(s) of claim(s) 1-5, 7, 9-12, 14-20, 22, 24-26, 28, and 30-34 under U.S.C. 103§ have been fully considered and are persuasive. Therefore, the rejection has been withdrawn. However, upon further consideration, a new ground(s) of rejection is made in view of newly discovered art.

### ***Claim Rejections - 35 USC § 102***

2. The following is a quotation of the appropriate paragraphs of 35 U.S.C. 102 that form the basis for the rejections under this section made in this Office action:

A person shall be entitled to a patent unless –

(b) the invention was patented or described in a printed publication in this or a foreign country or in public use or on sale in this country, more than one year prior to the date of application for patent in the United States.

3. Claims 1-3, 5, 10-12, 14, 16-20, 25, 26, 28, 30, 33, 34 rejected under 35 U.S.C. 102(b) as being anticipated by Pomarede et al. (Pomarede). Pomarede discloses a method for treating a substrate prior to deposition comprising the following steps (pp 5-9). A substrate containing an epitaxial silicon layer is subjected to a cleaning in an SC1 [RCA process]/HF bath (paragraph 0061) or an in situ hydrogen bake. This cleaning is known to leave a hydrogen-terminated surface. Therefore, the pressure that the cleaning takes place at is the same pressure at which the hydrogen formation takes place. Pomarede then discloses a treatment 110 in which a source gas, of which nitrogen fluoride is disclosed (paragraph 0065), is introduced at a temperature of 75 degrees Celsius to 700 degrees Celsius with 500 degrees Celsius being a preferred

Art Unit: 1746

temperature. A polysilicon layer (paragraph 0085) is deposited 125 at similar temperatures (paragraph 0094). The cleaning, introduction of gas, and deposition all occur in situ at relatively constant pressures. Pomarede discloses that this method can be used with arsenic-doped polysilicon deposition (paragraph 0102).

***Claim Rejections - 35 USC § 103***

4. The following is a quotation of 35 U.S.C. 103(a) which forms the basis for all obviousness rejections set forth in this Office action:

(a) A patent may not be obtained though the invention is not identically disclosed or described as set forth in section 102 of this title, if the differences between the subject matter sought to be patented and the prior art are such that the subject matter as a whole would have been obvious at the time the invention was made to a person having ordinary skill in the art to which said subject matter pertains. Patentability shall not be negated by the manner in which the invention was made.

5. Claim 4 rejected under 35 U.S.C. 103(a) as being unpatentable over Pomarede in view of Yates. Yates disclose a method of reducing water spotting and oxide growth on a semiconductor structure. The reference discloses drying the substrate with alcohol as claimed. The reference discloses that the chemical treatment, rinsing, and drying are carried out in a single vessel. It would have been obvious for one skilled in the art to use the drying step taught by Yates in the process taught by Pomarede to improve the cleaning process by removing any trace of chemical cleaning solution on the surface of the substrate.

6. Claim 7, 9, 15, 22, 24, 31-32 rejected under 35 U.S.C. 103(a) as being unpatentable over Pomarede. Pomarede discloses temperatures within the claimed range, but does not disclose flow rates. Pomarede does disclose that for the given temperature, pressure, reaction times, and reaction concentrations can be adjusted to achieve the desired surface conditioning (0065). Examiner feels that flow rate and

Art Unit: 1746

duration fall under the obvious modifications Pomarede alludes to. Furthermore, it is well settled that determination of optimum values of cause effective variables such as flow rate is within the skill of one practicing the art. *In re Boesch*, 205 USPQ 215 (CCPA 1980). It would have been obvious at the time of the invention to modify the flow rate, concentration, or exposure time to achieve the desired breaking of surface bonds without significant bulk modification in order to obtain the desired conditioning.

### ***Conclusion***

Any inquiry concerning this communication or earlier communications from the examiner should be directed to Jason Heckert whose telephone number is (571) 272-2702. The examiner can normally be reached on Mon. to Friday, 8:00 - 5:00.


If attempts to reach the examiner by telephone are unsuccessful, the examiner's supervisor, Michael Barr can be reached on (571)272-1414. The fax phone number for the organization where this application or proceeding is assigned is 571-273-8300.

Information regarding the status of an application may be obtained from the Patent Application Information Retrieval (PAIR) system. Status information for published applications may be obtained from either Private PAIR or Public PAIR. Status information for unpublished applications is available through Private PAIR only. For more information about the PAIR system, see <http://pair-direct.uspto.gov>. Should you have questions on access to the Private PAIR system, contact the Electronic Business Center (EBC) at 866-217-9197 (toll-free). If you would like assistance from a USPTO Customer Service Representative or access to the automated information system, call 800-786-9199 (IN USA OR CANADA) or 571-272-1000.

Application/Control Number: 10/675,575  
Art Unit: 1746

Page 5

JMH



**MICHAEL BARR**  
**SUPERVISORY PATENT EXAMINER**